

**CLAIMS**

1. Method for addressing the participants of a bus system comprising a control unit, a bus starting from the control unit and a plurality of addressable participants connected to the bus, wherein in the method
  - each participant not addressed so far feeds an identifying current for identifying purposes into the bus, wherein all identifying currents flow through the bus towards the control unit,
  - each participant not addressed so far detects the current flowing through the bus,
  - only that participant not addressed so far, which does not detect any current or merely detects a current which is smaller than a predeterminable first threshold value, is identified as a participant not addressed so far,
  - an address for addressing purposes is assigned to the thus identified participant, and
  - the aforementioned steps are carried out, without the respective participant addressed last, until all participants not addressed so far are addressed.
  
2. Method according to claim 1, characterized in that
  - the bus has connected thereto, besides the addressable participants, at least one participant not addressable which feeds a quiescent current into the bus,
  - each participant not addressed so far detects, prior to feeding the identifying currents, the quiescent current flowing through the bus,
  - merely the participants not addressed so far feed the identifying currents into the bus,
  - merely that participant not addressed so far is identified as a participant not addressed so far which, while the identifying currents are being fed by all participants not addressed so far, does not

detect any current difference or merely detects a current difference which is smaller than a predeterminable second threshold value as compared with its previous detection,

- an address for addressing purposes is assigned to the participant thus identified, and
- the aforementioned steps are carried out, without the respective participant addressed last, until all participants not addressed so far are addressed.

3. Method according to claim 1, characterized in that

- each addressable participant feeds a quiescent current into the bus,
- each participant not addressed so far feeds a quiescent current into the bus,
- each participant not addressed so far detects the current fed as quiescent current and flowing through the bus,
- it is determined which of the participants not addressed so far detects a current exceeding a predeterminable third threshold value,
- merely those participants not addressed so far, which, while the quiescent currents are being fed, detect a current smaller than or equal to the third threshold value, feed identifying currents into the bus,
- from the group of these participants not addressed so far and feeding identifying currents only that participant is identified as a participant not addressed so far which does not detect any current or merely detects a current which is smaller than a predeterminable fourth threshold value,
- an address for addressing purposes is assigned to the participant thus identified, and

- the aforementioned steps are carried out, without the respective participant addressed last, until all participants not addressed so far are addressed.
4. Method according to claim 1, characterized in that
- the bus has connected thereto, besides the addressable participants, at least one participant not addressable which feeds a quiescent current into the bus,
  - each participant not addressed so far detects, prior to feeding of the identifying currents, in a first current detection the current fed as quiescent current by all non-addressable participants and flowing through the bus,
  - subsequently each addressable participant feeds a quiescent current into the bus,
  - it is determined which of the participants not addressed so far detects a current exceeding a predeterminable fifth threshold value,
  - merely those participants not addressed so far, which, while the quiescent currents are fed, detect a current smaller than or equal to the fifth threshold value, feed identifying currents into the bus,
  - from the group of these participants not addressed so far and feeding identifying currents merely that participant is identified as a participant not addressed so far which does not detect any current difference or merely detects a current difference which is smaller than a predeterminable sixth threshold value as compared with the first detection,
  - an address for addressing purposes is assigned to the participant thus identified, and
  - the aforementioned steps are carried out, without the respective participant addressed last, until all participants not addressed so far are addressed.

5. Method according to one of claims 1 to 4, characterized in that the second threshold value and/or the fourth threshold value and/or the sixth threshold value are equal to the first threshold value, and/or that the fifth threshold value is equal to the third threshold value, or that all threshold values are identical.
6. Method according to one of claims 1 to 5, characterized in that the current detection in the participants is effected via shunt resistors of the bus assigned to the addressable participants, wherein all shunt resistors are connected in series along the bus.
7. Method according to one of claims 1 to 6, characterized in that instead of a current detection a voltage detection is carried out in the participants.
8. Method according to one of claims 1 to 7, characterized in that the assignment of an address is effected by transmitting an address to the identified participant or in that the same address is transmitted to all participants not addressed so far prior to identification of a participant, and merely the subsequently identified participant accepts this address as its own address.
9. Method according to one of claims 1 to 8, characterized in that the assignment of an address is effected after the first identification of a participant, or after verification of a participant, e. g. by another identification of the participant and comparison of the second identification with the first identification.